

12505450 Granger Drain at Granger, WA

WATER-QUALITY STATION ANALYSIS—WY1999–WY2000

SAMPLING LOCATION—Samples were taken from a wading section approximately 75 feet above the gage.

SAMPLING METHODS—EWI samples for the cone splitter and churn were obtained from 10 verticals using a DH-81 sampler with 3-liter teflon bottle. Samples for the analysis of major ions, nutrients, and trace elements were composited and split using the churn, whereas samples for the analysis of organic compounds, dissolved and suspended organic carbons, and suspended sediment were taken from the cone splitter. Water was directly filtered and/or preserved, if needed, and then chilled. Samples for chemical analyses were shipped via FedEx to NWQL the same day. Suspended sediment samples were taken to Cascade Volcano Observatory Sediment Lab for analysis.

Basic field parameters (air temperature, water temperature, barometric pressure, dissolved oxygen, pH, specific conductance, alkalinity) were measured at every visit. Dissolved oxygen and water temperature were measured mid-channel, whereas specific conductance and pH were measured on aliquots from the composited sample. Alkalinity was determined from a filtered sample taken from the composited sample.

Turbidity was determined from an aliquot taken from the composited sample using the Hach 2100N Turbidimeter. These analyses were performed either by Jan O'Neil in the Pasco Field Office or Bill Rice (Roza-Sunnyside Board of Joint Control) in the Sunnyside Valley Irrigation District lab space.

Continuous streamflow, water temperature, and specific conductance were recorded hourly and published for the year. For more details, see the records from the Pasco Field Office.

SAMPLING PROGRAMS—High intensity phase (HIP) agricultural indicator site for the National Water-Quality Assessment (NAWQA) Program visited from May 1999–September 1999 (irrigation season) on a weekly basis and from October 1999–January 2000 (nonirrigation season) on a monthly basis. Granger Drain was also sampled twice during the August 1999 synoptic sampling and once each during the June and July 2000 synoptic samplings.

Suspended sediment: Every sampling 25 visits

SH 2075 SOC/DOC: Every sampling, 25 visits

SH2701 Major ions: Once a month, 10 visits

SH2702 Nutrients: Every sampling, 25 visits

SH2703 Trace elements: Every other sampling during irrigation season and every sampling during nonirrigation season (switched to SH2710 for the January 2000 sampling), 14 visits

SH2710 Trace elements: January 2000, 1 visit

SH2001 Pesticides in filtered water: Every sampling, 25 visits

LC9060 Pesticides in filtered water: Every sampling, 25 visits

LC9002 Pesticides and degradation products in filtered water: Once during the August 1999 synoptic sampling and every sampling from November 1999–January 2000, 4 visits

LC8398 Custom organochlorine compounds in whole water (SH1398 plus o,p'-DDX, cis-nonachlor, o,p'-methoxychlor, and oxychlordan): Every other sampling during irrigation season and every sampling during nonirrigation season, 14 visits

LC8388 Custom chlorophenoxy acid herbicides in whole water (SH79 plus p,p'-DDA): Sampled in November and December 1999

Quality-control samples were taken as follows:

May 20	LC9060 lab spike; LC8398 replicate; SH2075 replicate; SH2703 replicate; alkalinity replicate
June 3	SH2702 replicates
July 7	SH2001 mixup at NWQL, data not stored in NWIS
July 15	SH2001 replicate; LC9060 replicate; LC8398 replicate; alkalinity replicate
July 22	SH2001 replicate and lab spike; SH2702 blank; alkalinity replicate—Suspended sediment sample broken at CVO
July 28	LC8398 blank; alkalinity replicate—no FU bottle received at NWQL for SH2701
August 3	SH2001 blank, lab spike, and spike replicate; LC9060 lab spike and spike replicate; LC9002 replicate; LC8398 replicate; SH2075 replicate; SH2702 replicate; SH2703 blank
August 12	LC9060 blank
August 19	SH2001 blank; SH2702 replicate and field spike; alkalinity replicate
August 26	alkalinity replicate
September 1	SH2075 blank
September 10	SH2703 blank; alkalinity replicate
September 16	LC9060 replicate and lab spike; alkalinity replicate
September 23	LC8398 replicates (2); alkalinity replicate
September 30	SH2001 replicate and lab spike; alkalinity replicate
October 21	SH2001 blank; SH2075 replicate; alkalinity replicate
November 17	LC8398 blank; LC8388 replicate; SH2701 blank; suspended sediment replicate
December 9	LC8388 replicate and field spike
January 12	LC9002 replicate and lab spike; SH2710 replicate—SOC sample ruined at NWQL
July 18, 2000	SH2001 replicate, field spike, spike replicate, and prefilter spike

REMARKS AND REVIEW OF DATA—

Data to be included in Annual Data Report: discharge, field parameters (barometric pressure, air temperature, water temperature, pH, dissolved oxygen, specific conductance, alkalinity), suspended sediment, SH2075, SH2701, SH2702, SH2703, SH2710, SH1398, SH79, SH2001

Data not to be included in Annual Data Report: Turbidity, LC8398 custom parameters (o,p'-DDX, cis-nonachlor, o,p'-methoxychlor, oxychlorane), LC8388 custom parameter (p,p'-DDA), LC9060, LC9002

Comments about specific values:

Air temperature (P00020) Values missing for July 7, August 3, and August 4, 1999, and July 18, 2000, because field personnel did not measure air temp

CI (P00940), F (P00950), No FU bottle received at NWQL for SH2701 for July 28 sample, therefore Sulfate (P00945), these analyses not run
Residue on evap (P70300)

Total Diss Solids (P70301) Value for July 28 not calculated because of the missing analytes listed above

Suspended organic carbon (P00689)	Sample for January 12 was ruined during analysis
Turbidity (P00076)	Value missing for July 7 because field personnel did not get sample analyzed; sample for May 27 was analyzed at NWQL; turbidity will not be published in ADR
Suspended sediment (P80154)	Sample bottle for July 22 was broken at CVO during analysis
Chromium (P01030)	Values for July 1 (0.3) and August 4 (0.3) were determined by LC1936 (GFAA) rather than LC1789 (ICP-MS); at this time, NWQL is trying to figure out how to handle this data electronically; for the ADR, the values have been entered in NWIS as <1 (MRL in place then)
SH2001 parameters	Values missing for July 7 because SH2001 sample was mixed up with a sample from Boise at NWQL, values were sent by email to gjfuhrer but were not put into NWIS
Methoxychlor (P39480)	Values for June 15 (E0.005), July 15 (E0.002), July 28 (E0.001), August 3 (E0.002), August 4 (E0.002), and January 12 (E0.001) are listed as M (Presence of material verified but not quantified) when rounded out of NWIS; these values need to be hand-entered into the ADR; request to have Scott Knowles add "p,p'-" to column heading for ADR tables (see DDX species); o,p'-methoxychlor was analyzed as part of custom LC8398; even though the o,p'-methoxychlor data will not be in the ADR, this name change will hopefully prevent future confusion